

Appendix I: Botany Biological Evaluation

File Code: 2670

Date: June 14, 2005

Route To:

Subject: Botanical Biological Evaluation Waldo Lake – Managing Recreation Use
Environmental Assessment

To: Waldo Analysis Files

Introduction

Forest management activities that may impact populations of or alter habitat for PETS (proposed, endangered, threatened, or sensitive) species require a Biological Evaluation (FSM 2671.44) to be completed. The Biological Evaluation process (FSM 2672.43) is used to assist in determining the possible effects the proposed management activities have on:

A. Species listed or proposed to be listed as endangered (E) or threatened (T) by the U.S. Fish and Wildlife Service (FWS).

B. Species listed as sensitive (S) by the USDA Forest Service, Region 6. There are 71 organisms listed on the Regional Forester's Sensitive Botanical List that are documented or suspected to occur on the Willamette National Forest (Attachment 1).

The Record of Decision (ROD) to remove or modify the survey and manage mitigation measure standards and guidelines (USDI and USDA, 2004) directed review and inclusion of former survey and manage species in the Special Status Species Program. The ROD further directs the Forest to conduct pre-project clearances for these species prior to habitat-disturbing activities. Assumptions were made that "if pre-project surveys were not practical under Survey and Manage Standards and Guidelines (most Category B and D species), then field surveys are not likely to occur for Special Status Species either" (p. 6). Therefore, the ROD directs us that habitat evaluation for presence of suitable or potential habitat and habitat examinations may suffice for pre-project clearances for species where single year surveys are impractical (for the Willamette this means fungi).

To comply with the 2004 ROD, a new Regional Forester's Sensitive Plant list was issued in July 2004. This list includes both vascular plant species from the 1999 Regional Forester's Sensitive Plant list and nonvascular former survey and manage species that meet the criteria for sensitive species. The latter list includes fungi, bryophytes and lichens. These species are split into those that are surveyable in a single field season (Table 1a) and those deemed non-surveyable (Table 1b).

Project Location and Description

This analysis addresses the potential effects of the **Waldo Lake Managing Recreation Use Environmental Analysis (EA)** on threatened, endangered or sensitive plant species listed in the R-6 Sensitive Species List. The purpose of the project is to amend the Forest Plan to regulate motorized recreation activities on and around Waldo Lake so as to meet recreation experience objectives for the Semiprimitive Nonmotorized shoreline management area and manage Waldo

Lake as a outstanding nonmotorized boating opportunity in the Pacific Northwest. The proposed action to meet the project's purpose and need is as follows:

Alternative 4 – Proposed Action:

- Restrict boat motor use to electric motors only year-round (except for emergencies and pre-approved research needs)
 - apply boat motor restriction after two-year transition period to allow boaters time to reinvest in electric motor options,
- prohibit floatplanes from accessing the surface of Waldo Lake year-round, and
- prohibit public use of generators and chainsaws in the Dispersed Recreation, Semiprimitive Nonmotorized management area (MA-10e) surrounding the lake.

Alternatives to the proposed action include:

Alternative 1 – No change in management of motorized recreation on or around Waldo Lake.

Alternative 2 – Restrict boat motors to four-cycle gas-powered or electric options only,

- apply boat motor restriction after a two-year transition period.

Alternative 3 –restrict all gas-powered boat motors from July 15 to the 1st Monday after Labor Day in September (except for emergencies and approved research, by Forest approval only),

- apply boat motor restriction after a two-year transition period.
- prohibit float planes from accessing the surface of Waldo Lake year-round, and
- prohibit use of generators and chainsaws in MA- 10e management area whenever boat motors are restricted.

Alternative 5 - Amend the Forest Plan to change the Waldo Lake ROS to Semiprimitive Motorized, plus

- prohibit all gas-powered boat motors from July 15 to the 1st Monday after Labor Day in September (except for emergencies and research, by Forest approval only),
 - apply boat motor restriction immediately.
- prohibit float planes from accessing the surface of Waldo Lake year-round, and
- prohibit use of generators and chainsaws in MA- 10e management area year-round.

The proposed project area is located at Waldo Lake within the Middle Fork Ranger District, Willamette National Forest. The legal description is T21S, R6E; T21S, R6 1/2E; and T22S, R6 1/2E. The elevation at the 9.8 square mile Waldo Lake is 5,414 feet. The management area surrounding Waldo Lake is *Dispersed Recreation, Semiprimitive Nonmotorized* (MA10e).

Biological Evaluation Process

Under the suggested procedure for conducting a biological evaluation as described in a memo issued August 17, 1995 by the Regional Foresters of regions 1, 4, and 6, the Biological Evaluation is a 7 step process to evaluate possible effects to Proposed, Endangered, Threatened, and Sensitive (PETS) species. The seven steps are as follows:

1. Review of existing documented information.
2. Field reconnaissance of the project area.
3. Determination of effects of proposed actions on PETS species
4. Determination of irreversible or irretrievable commitment of resources (required for

- listed and proposed species only).
5. Determination of conclusions on effects
 6. Recommendations for removing, avoiding, or compensating adverse effects
 7. Documentation of consultation with other agencies, references, and contributors

Evaluation of effects for each species may be complete at the end of step #1 or may extend through step #5, depending on project details.

Steps 1, 2 and 5 from above are included in this document.

Evaluation and Survey of the Planning Area

Prefield review was performed for all areas included in this analysis in order to determine the presence of known sites or habitat for 71 Region 6 sensitive species. Using the current list of potential PETS species (compiled from USFWS listings, Oregon Natural Heritage Program listings, Oregon Department of Agriculture listings, and the Regional Forester's sensitive species list), maps of known sensitive plant populations were checked for previously reported sites and aerial photos and topographical maps were scrutinized for potential habitat. The ISMS database was queried to determine if any sensitive species previously categorized as survey and manage occur in or adjacent to project areas.

The proposed restrictions on recreation use at Waldo Lake will have minimal ground disturbing effects (e.g. placement of information signs at boat launches/trailheads and roadways). For this reason extensive surveys have not been conducted for sensitive species in the Waldo Lake Basin. Sensitive plants have been looked for during wildflower field trips in the lakeside area at various times. Other past surveys efforts included searches in some of the dispersed areas, campgrounds and trail segments for small site-specific maintenance and improvement projects.

Surveys are not currently conducted for fungi because single pre-disturbance surveys for these species have been deemed impractical (USDA 1998; USDA, 2000; USDA, 2004). All fungi except *Bridgeoporus nobilissimus*, which is a perennial conk, were formerly Category B Survey and Manage Species (rare but pre-disturbance surveys impractical). In general, the habitat requirements of fungal species found on the Willamette National Forest sensitive species list are poorly understood. The literature provides very general habitat characteristics for most of these species; therefore they are listed in Table 1b as having potential habitat in forested areas.

Locations of sensitive species occurrence

Plants documented near Waldo Lake include Scheuchzeria (*Scheuchzeria palustris* var. *americana*), a rush-like plant in the Scheuchzeriaceae family, and, lesser bladderwort (*Utricularia minor*) an aquatic insectivorous plant in the Lentibulariaceae family, are both found in Gold Lake Bog to the south of Waldo Lake. Hairy cinquefoil (*Potentilla villosa*) in the Rosaceae family is documented on Fuji Mountain, southwest of Waldo Lake. This population is on a rock cliff at the top of a ~5500' peak. Similar habitat for Scheuchzeria is found in the analysis area, there is a low potential for occurrence of hairy cinquefoil in the analysis area.

Several sensitive species are documented to occur within the Waldo Lake analysis area.

Northern bog club moss, (*Lycopodiella inundata*), a pteridophyte in the Lycopodiaceae family, is a bog-inhabiting perennial herb with terminal spore producing cones on its upright branches and

spreading, freely rooting horizontal branches. Dr. David Wagner, who was conducting surveys for rare liverworts in the lake, incidentally discovered the population at the of the original stream outlet at the north end of Waldo Lake in the vicinity of Dam Camp, a popular dispersed camping site. The population resides next to a ponded area with sphagnum moss as an associate. Additional habitat for this species is found in several wet meadows either adjacent to the lakeshore or at small lakes and ponds in the Waldo Lake basin.

One non-vascular moss species, goblin's gold (*Schistostega pennata*) is found on moist stream banks and root balls in several sites southeast of the lake. Two sites are directly adjacent to the Waldo Lake Trail. There is additional habitat around the lake in forested habitat with downed wood. The forested areas in the Waldo Basin are high in fungal diversity and are potential habitat for sensitive fungi. Fungi currently listed sensitive and documented in the Waldo Lake area include two mycorrhizal coral fungi, *Ramaria amyloidea* and *R. aurantiisiccescens*. These sites are associated with mixed conifer forested areas on the west side of the lake. The fruiting bodies of these species could be found in dispersed and managed recreation sites. All of these species are located in areas that are used for camping and hiking, thus are addressed in the effects section in this document.

Table's 1a and 1b displays the results of pre-field review, the level of field surveys performed (if applicable), and the results of the surveys.

Table 1a: Summary of Evaluation Process for PETS Botanical Species for surveyable species

Species	Prefield Review	Field Recon.	Species Presence
<i>Agoseris elata</i>	habitat present	Level A, dry to mesic meadows/open woods	unknown, comprehensive surveys not done
<i>Arabis hastatula</i>	habitat not present		
<i>Arnica viscosa</i>	habitat present	Level A, rocky places, skree	unknown, comprehensive surveys not done
<i>Asplenium septentrionale</i>	habitat not present		
<i>Aster gormanii</i>	habitat not present		
<i>Botrychium minganense</i>	habitat not present		
<i>Botrychium montanum</i>	habitat not present		
<i>Botrychium pumicola</i>	habitat not present		
<i>Bridgeoporus nobilissimus</i>	habitat present	Level A, true fir forest	unknown, comprehensive surveys not done
<i>Calamagrostis breweri</i>	habitat present	Level A, wet/mesic meadows, lake edges	unknown, comprehensive surveys not done
<i>Carex livida</i>	habitat not present		

<i>Carex scirpoidea</i> var. <i>stenochlaena</i>	habitat not present		
<i>Castilleja rupicola</i>	habitat not present		
<i>Chaenotheca subroscida</i>	habitat not present		
<i>Cimicifuga elata</i>	habitat not present		
<i>Coptis trifolia</i>	habitat present	Level A, “boggy” meadows	unknown, comprehensive surveys not done
<i>Corydalis aqua-gelidae</i>	habitat not present		
<i>Dermatocarpon luridum</i>	habitat present	Level A, on rock in streams	unknown, comprehensive surveys not done
<i>Eucephalis(Aster) vialis</i>	habitat not present		
<i>Frasera umpquaensis</i>	habitat not present		
<i>Gentiana newberryi</i>	habitat present	Level A, meadows	unknown, comprehensive surveys not done
<i>Hypogymnia duplicata</i>	habitat present	Level A, old growth true fir and hemlock forests	unknown, comprehensive surveys not done
<i>Iliamna latibracteata</i>	habitat not present		
<i>Leptogium burnetiae</i> var. <i>hirsutum</i>	habitat present	Level A, forest	unknown, comprehensive surveys not done
<i>Leptogium cyanescens</i>	habitat present	Level A, forest	unknown, comprehensive surveys not done
<i>Lewisia columbiana</i> var. <i>columbiana</i>	habitat not present		
<i>Lobaria linita</i>	habitat present	Level A, forest, rock outcrops	unknown, comprehensive surveys not done
<i>Lupinus sulphureus</i> var. <i>kincaidii</i>	habitat not present		
<i>Lycopodiella inundata</i>	habitat present	Level A, and B Sphagnum bogs/ meadows, pond/lake edges	present , site vicinity of lake outlet north edge, not all habitat surveyed
<i>Lycopodium complanatum</i>	habitat present	Level A, moist forest	unknown, comprehensive surveys not done
<i>Montia howellii</i>	habitat not present		

<i>Nephroma occultum</i>	habitat present	Level A, moist forest	unknown, comprehensive surveys not done
<i>Ophioglossum pusillum</i>	habitat not present		
<i>Pannaria rubiginosa</i>	habitat not present		
<i>Pellaea andromedaefolia</i>	habitat not present		
<i>Peltigera neckeri</i>	habitat present	Level A, forest	unknown, comprehensive surveys not done
<i>Peltigera pacifica</i>	habitat not present		
<i>Pilophorus nigricaulis</i>	habitat present	Level A, talus, rock outcrops, large boulders	unknown, comprehensive surveys not done
<i>Polystichum californicum</i>	habitat not present		
<i>Potentilla villosa</i>	habitat not present		
<i>Pseudocyphellaria rainierensis</i>	habitat not present		
<i>Ramalina pollinaria</i>	habitat not present		
<i>Rhizomnium nudum</i>	habitat adjacent	Level A, moist forest	unknown, comprehensive surveys not done
<i>Romanzoffia thompsonii</i>	habitat not present		
<i>Scheuchzeria palustris</i> var. <i>americana</i>	habitat present	Level A, and B Sphagnum bogs/meadows, pond/lake edges	unknown, comprehensive surveys not done
<i>Schistostega pennata</i>	habitat present	Level A and B, root balls, shaded stream banks in moist forested areas	present , several sites west edge of Waldo Lake, not all habitat surveyed
<i>Scirpus subterminalis</i>	habitat present	Level A, wet shoreline edges	unknown, comprehensive surveys not done
<i>Scouleria marginata</i>	habitat present	Level A riparian aquatic	unknown, comprehensive surveys not done
<i>Sisyrinchium sarmentosum</i>	habitat present	Level A, streams, meadow margins near lake	unknown, comprehensive surveys not done

<i>Tetraphis geniculata</i>	habitat adjacent	Level A, moist forest/downed wood	unknown, comprehensive surveys not done
<i>Thorluna disimilis</i>	habitat not present		
<i>Usnea longissima</i>	habitat not present		
<i>Utricularia minor</i>	habitat present	Level A, and B Sphagnum bogs/meadows, pond/lake edges	unknown, comprehensive surveys not done
<i>Wolffia borealis</i>	habitat present	Level A, and B Sphagnum bogs/meadows, pond/lake edges	unknown, comprehensive surveys not done
<i>Wolffia columbiana</i>	habitat present	Level A, ponds, channels	unknown, comprehensive surveys not done

Table 1b: Summary of Evaluation Process for PETS Botanical Species for Species Deemed Unsurveyable

Group	Species	Prefield Review/Rationale
Mycorrhizal Fungi	<i>Boletus pulcherrimus</i>	habitat present/presence unknown
	<i>Cortinarius barlowensis</i>	habitat present /presence unknown
	<i>Gomphus kaufmanii</i>	habitat present /presence unknown
	<i>Leucogaster citrinus</i>	habitat present /presence unknown
	<i>Phaeocollybia attenuata</i>	habitat present /presence unknown
	<i>Phaeocollybia dissiliens</i>	habitat present /presence unknown
	<i>Phaeocollybia pseudofestiva</i>	habitat present /presence unknown
	<i>Phaeocollybia sipei</i>	habitat present /presence unknown
	<i>Ramaria amyloidea</i>	habitat present / present
	<i>Ramaria aurantiisiccescens</i>	habitat present / present
	<i>Ramaria gelatiniaurantia</i>	habitat present /presence unknown
	<i>Ramaria largentii</i>	habitat present /presence unknown
Saprophytic on Litter Fungi		
	<i>Cudonia monticola</i>	habitat present /presence unknown
	<i>Sowerbyella rhenana</i>	habitat present /presence unknown
Saprophytic on Wood	<i>Gyromitra californica</i>	habitat present /presence unknown
Parasitic Fungi	<i>Cordyceps capitata</i>	habitat present /presence unknown

Potential Effects on PETS Species

Potential effects are listed in accordance with the formats put forth for listed species in the 1986 Endangered Species Act regulations (50 CFR Part 402), the March 1998 FWS/NMFS Endangered Species Consultation Handbook; and, for sensitive species, in the Forest Service Manual section 2670 and in the May 15 and June 11, 1992 Associate Chief/RF 2670 letters on

this topic. The suggestion to use this format was also included in a memo issued August 17, 1995 by the Regional Foresters of Regions 1, 4, and 6. Attachment 3 gives details on these effects categories. Table 2 shows conclusions for effects of proposed actions on sensitive species with respect to each alternative in the Environmental Assessment.

Direct/Indirect Effects on PETS species

The vegetation around Waldo Lake is typically slow to recover from disturbance; there is a short growing season here and harsh environmental conditions. This highlights the potential for adverse impacts to associated sensitive plant habitat from human disturbance.

The northern bog club moss (*L. inundata*) population appears vigorous and does not appear to be adversely affected at this time by recreational activities. However, the population is adjacent to dispersed camping sites and the Waldo Shoreline trail therefore, it is potentially susceptible to a higher degree of human visitation and potential trampling over the short and long term than sites known in more remote areas. Avoidance of this population area has already been stipulated in special use permits for large groups camping and recreating near this site to lessen trampling potential from foot traffic. Although this site has been reviewed on an annual basis for recreation impacts to the population, use regulations have up to this point only been specified for certain special use permits. Monitoring visits to this site will continue in the future to aid in tracking the health and stability of this population over time, and to determine if restrictions or other measures should be considered to mitigate habitat degradation from recreation use.

The two goblin's gold (*S. pennata*) sites are directly adjacent to shoreline trail segments and so the specific micro-site conditions favored by this species could potentially be impacted by recreation use and trail maintenance activities. Fortunately, there are no identified dispersed camping areas in the vicinity of these populations. This project does not propose actions that would directly or indirectly influence recreation activities near these sites. If future monitoring shows that recreation use is damaging these sites or similar habitat, then mitigation measures such as re-routing the trail may become necessary.

All fungus groups could be found in the Waldo Lake area within forested habitats, including campgrounds and dispersed camping areas. Impacts to fungi are described in terms of functional group (mycorrhizal, saprophytic on litter, saprophytic on wood). Since the parasitic *Cordyceps* is dependent on a mycorrhizal fungus for its survival, effects for parasitic fungi will be lumped into the mycorrhizal functional group. Due to the ephemeral nature of the visible fruiting bodies, management strategies are focused on protection/retention of below ground mycelial networks, growing substrate, host species, and adequate canopy retention.

Recreation use effects may be comprised of minor localized disruption of mycelial networks or substrate (wood, litter) caused by trampling or the creation of expanded or new areas of soil compaction, soil disturbance, and the removal of woody material, host trees or other vegetation affecting microsite conditions (Kranabetter and Wylie, 1998; Amaranthus and Perry, 1994). These effects typically occur around developed campgrounds and dispersed sites, and within trail rights of way.

This project directly influences only the removal of woody material and standing trees near dispersed sites around Waldo Lake by regulating the public's use of chainsaws. Fortunately public use of chainsaws for firewood gathering is not common at dispersed sites around Waldo

Lake and primarily occurs at a few of sites during the big game hunting seasons. Alternatives 1 and 2 retain the potential for the direct loss of large woody material and snags by allowing the visiting public to use chainsaws at dispersed camp sites. Alternative 3 has a slightly lower potential for allowing this habitat effect by prohibiting public use of chainsaws during 50-60 days in late summer when most use occurs. Alternatives 4 and 5 reduce the potential for the felling and loss of larger host snags and substrate biomass by prohibiting chainsaw use for firewood gathering throughout the recreation season. Under Alternatives 4 and 5, the dispersed site visitors would confine their firewood gathering to small-diameter ground wood.

Cumulative Effects on PETS species

Past, present and foreseeable related future actions and activities that could potentially contribute to cumulative effects to sensitive botanical species in the Waldo Lake area include those associated with facility and trail construction and maintenance, and recreation use of lakeshore areas that could or do support sensitive plants and fungi. Alternative 1 (No Action) does not modify recreational activities that cumulatively affect sensitive plant species over time. Alternative 2 would have the same cumulative effects on PETS species as Alternative 1. Alternatives 3, 4 and 5 would likely create a small reduction in the cumulative effects created by recreation use on PETS species. The incremental differences in cumulative effects on PETS species between these alternatives are small and insignificant. Planned actions and activities are subject to botanical review and survey prior to implementation if deemed necessary, and any potential impacts to known sites would be mitigated through avoidance or with protection measures.

For actions associated with this analysis, effects were categorized by alternatives as follows:

Table 2: Summary of Conclusion of Effects

Species/Functional Group	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4 (Proposed Action)	Alternative 5
<i>Arnica viscosa</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Bridgeoporus nobillissimus</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Calamagrostis breweri</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Coptis trifolia</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Dermatocarpon luridum</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Gentiana newberryi</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Hypogymnia duplicata</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Leptigium cyanescens</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Leptogium burnetiae</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Lobaria linita</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Lycopodiella inundata</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Lycopodium complanatum</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Mycorrhizal Fungi</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Nephroma occultum</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Peltigera neckeri</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Peltigera pacifica</i>	MIIH	MIIH	MIIH	MIIH	MIIH

<i>Pilophorus nigricaulis</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Rhizomnium nudum</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Saprophytic on Litter</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Saprophytic on Wood</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Scheuchzeria palustris</i> <i>var. americana</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Schistostega pennata</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Scirpus subterminalis</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Scouleria marginata</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Sisyrinchium</i> <i>sarmentosum</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Tetraphis geniculata</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Utricularia minor</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Wolffia borealis</i>	MIIH	MIIH	MIIH	MIIH	MIIH
<i>Wolffia columbiana</i>	MIIH	MIIH	MIIH	MIIH	MIIH

Conclusion of Effects

Because of the proximity of locations of sensitive plant sites to popular dispersed sites around the Waldo Lake and the possibility that more sensitive plant sites may exist for 40 additional species, the effects conclusion is as follow. For implementation of the No Action, or any of the action alternatives, a “May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species (MIIH)” determination is made for species known or suspected to occur in the analysis area.

Key to Abbreviations in Table 2 (See attachment 4).

NI = No Impact

MIIH = May Impact Individuals or Habitat, But Will Not Likely Contribute
to a Trend Towards Federal Listing or Loss of Viability for the Population
or Species

WOFV* = Will Impact Individuals or Habitat with a Consequence That the
Action May Contribute to a Trend Towards Federal Listing or Cause a
Loss of Viability for the Population or Species

BI = Beneficial Impact

* Considered a trigger for a significant action in NEPA

Kim McMahan, Botanist

Date June 14, 2005

ATTACHMENT 1: Regional Forester's Sensitive Botanical Species List for the Willamette National Forest (Revised 2004). Species of federal, state and local importance are included on the R-6 list.

Species	Occurrence on WNF	ONHP Status	State Status	Federal Status	Habitat Types
<i>Agoseris elata</i>	S	2			MM, DM
<i>Arabis hastatula</i>	D	1		SofC	RO
<i>Arnica viscosa</i>	S	2			RS
<i>Asplenium septentrionale</i>	S	2			RO
<i>Aster gormanii</i>	D	1			RS
<i>Boletus pulcherrimus</i>	D	1			CF
<i>Botrychium minganense</i>	D	2			RZ, CF
<i>Botrychium montanum</i>	D	2			RZ, CF
<i>Botrychium pumicola</i>	S	1	LT		HV
<i>Bridgeoporus nobilissimus</i>	D	1			CF
<i>Calamagrostis breweri</i>	D	2			MM, RZ
<i>Carex livida</i>	S	2			WM
<i>Carex scirpoidea</i>	D	2			RO
<i>var. stenochlaena</i>					
<i>Castilleja rupicola</i>	D	2			RO
<i>Chaenotheca subroscida</i>	D	3			CF
<i>Cimicifuga elata</i>	D	1	C		CF
<i>Coptis trifolia</i>	S	2			WM, CF
<i>Cordyceps capitata</i>	D	unlisted			CF
<i>Corydalis aqua-gelidae</i>	D	1	C		RZ, CF
<i>Cudonia monticola</i>	D	not listed			CF
<i>Dermatocarpon luridum</i>	S	3			RZ on rock
<i>Eucephalis (Aster) vialis</i>	S	1	LT	SofC	CF
<i>Frasera umpquaensis</i>	D	1	C		MM
<i>Gentiana newberryi</i>	D	2			MM
<i>Gomphus kaufmanii</i>	D	3			CF
<i>Gyromitra californica</i>	D	2			CF
<i>Hypogymnia duplicata</i>	S	3			CF
<i>Iliamna latibracteata</i>	S	2			CF, RZ
<i>Leptogium burnetiae</i>					
<i>var. hirsutum</i>	S	3			CF
<i>Leptogium cyanescens</i>	D	3			CF
<i>Leucogaster citrinus</i>	D	3			CF
<i>Lewisia columbiana</i>	D	2			RS
<i>var. columbiana</i>					
<i>Lobaria linita</i>	D	2			RO
<i>Lupinus sulphureus</i>					
<i>var. kincaidii</i>	S	1	LT	LT	MM, DM
<i>Lycopodiella inundata</i>	D	2			WM

<i>Lycopodium complanatum</i>	D	2			CF
	Occurrence	ONHP	State	Federal	Habitat
Species	on WNF	Status	Status	Status	Types
<i>Montia howellii</i>	D	4	C		RZ
<i>Mycenia monticola</i>	D	not listed			CF
<i>Nephroma occultum</i>	D	4			CF
<i>Ophioglossum pusillum</i>	D	2			WM
<i>Pannaria rubiginosa</i>	D	2			CF
<i>Pellaea andromedaefolia</i>	S	2			RO
<i>Peltigera neckeri</i>	D	not listed			CF
<i>Peltigera pacifica</i>	D	not listed			CF
<i>Phaeocollybia attenuata</i>	D	4			CF
<i>P. dissiliens</i>	D	3			CF
<i>P. pseudofestiva</i>	D	3			CF
<i>P. sipei</i>	D	3			CF
<i>Pilophorus nigricaulis</i>	D	2			RO
<i>Polystichum californicum</i>	D	2			RO
<i>Potentilla villosa</i>	D	2			RS, RO
<i>Pseudocyphellaria</i>					
<i>rainierensis</i>	D	4			CF, RZ
<i>Ramalina pollinaria</i>	D	2			CF, RZ
<i>Ramaria amyloidea</i>	D	2			CF
<i>R. aurantiisiccescens</i>	D	4			CF
<i>R. gelatiniaurantia</i>	D	3			CF
<i>R. largentii</i>	D	3			CF
<i>Rhizomnium nudum</i>	D	2			CF
<i>Romanzoffia thompsonii</i>	D	1			RS
<i>Scheuchzeria palustris</i>	D	2			WM
<i>var. americana</i>					
<i>Schistostega pennata</i>	D	2			CF
<i>Scirpus subterminalis</i>	D	2			SW
<i>Scouleria marginata</i>	S	3			RZ
<i>Sisyrrinchium sarmentosum</i>	S	1	C	S of C	MM, DM
<i>Sowerbyella rhenana</i>	D	3			CF
<i>Tetraphis geniculata</i>	S	2			CF
<i>Thorluna disimilis</i>	D	2			CF
<i>Usnea longissima</i>	D	3			CF, RZ
<i>Utricularia minor</i>	D	2			SW
<i>Wolffia borealis</i>	S	2			SW
<i>Wolffia columbiana</i>	S	2			SW

Occurrence on Willamette National Forest:

S = Suspected

D = Documented

Oregon Natural Heritage Program (ORNHP):

1 = Taxa threatened or endangered throughout range.

2 = Taxa threatened or endangered in Oregon but more common or stable elsewhere.

3 = Species for which more information is needed before status can be determined, but which may be threatened or endangered (Review).

4 = Species of concern not currently threatened or endangered (Watch).

Oregon State Status:

LT = Threatened

LE = Endangered

C = Candidate

Federal Status: These plant species were originally published as CANDIDATE THREATENED (CT) in the Smithsonian Report, **Federal Register**, July 1, 1975, or as PROPOSED ENDANGERED (PE) in a later report, **Federal Register**, June 16, 1976. The latest **Federal Register** consulted was dated September 30, 1993. Updated listings appear periodically in the Notice of Review (USFWS); the status of several species is categorized as follows:

LE = Listed as an Endangered Species

LT = Listed as a Threatened Species

PE = Proposed as an Endangered Species

PT = Proposed as a Threatened Species

C = Candidate for Listing as Threatened or Endangered

Sof C = Species of Concern; taxa for which additional information is needed to support proposal to list under the ESA.

Habitat Types:

MM = Mesic meadows

WM = Wet meadows

DM = Dry meadows

RZ = Riparian zones, floodplains

CF = Coniferous forest

RS = Rocky slopes, scree

RO = Rock outcrops, cliffs

DW = Dry open woods

HV = High volcanic areas

SW = Standing water

ATTACHMENT 2: Field reconnaissance survey levels for determining presence potential for TES species.

Level A:	Aerial photo interpretation and review of existing site records. Determination of the potential for a listed species to occur within the proposed project area. No field surveys completed.	
	Low potential:	Less than 40% potential for listed species inhabiting the project area.
	Moderate potential:	40-60% potential for a listed species inhabiting the proposed project area.
	High potential:	Greater than 60% potential for listed species inhabiting the proposed project area.
Level B:	Single entry survey of probable habitats. Areas are identified by photos and existing field knowledge. Field surveys are conducted during the season most favorable for species identification.	
	Low intensity:	Selected habitat surveys (approximately 5-10% of area) are conducted with a single entry for listed species inhabiting the proposed project area.
	Moderate intensity:	Selected habitat surveys (approximately 10-40% of area) are conducted with a single entry for listed species inhabiting the proposed project area.
	High intensity:	Selected habitat surveys (approximately 40-60% of area) are conducted with a single entry for listed species inhabiting the proposed project area.
Level C:	Multiple entry surveys are conducted for listed species likely to inhabit the proposed project area.	
	Low intensity:	Selected habitat surveys (approximately 5-10% of area) are conducted with repeated entries for listed species inhabiting the proposed project area.
	Moderate intensity:	Selected habitat surveys (approximately 10-60% of area) are conducted with repeated entries for listed species inhabiting the proposed project area.
	High intensity:	Selected habitat surveys (approximately 60-80% of area) are conducted with repeated entries for listed species inhabiting the proposed project area.

ATTACHMENT 3:

Conclusions of Effects For Use In Biological Evaluations and Assessments
USDA Forest Service - Regions 1, 4, and 6
August, 1995

Listed Species:

1. No Effect

Occurs when a project or activity will not have any “effect”, on a listed species, or critical habitat.

2. May Affect - Likely to Adversely Affect (LAA)

If the determination in the biological assessment is that the project May Affect - Likely to Adversely Affect a listed species or critical habitat, formal consultation must be initiated (50 CFR 402.12). Formal consultation must be requested in writing through the Forest Supervisor (FSM 2670.44) to the appropriate FWS Field Supervisor, or NOAA Fisheries office.

3. May Affect - Not Likely to Adversely Affect (NLAA)

If it is determined in the biological assessment that there are “effects” to a listed species or critical habitat, but that those effects are not likely to adversely affect listed species or critical habitat, then written concurrence by the FWS or NOAA Fisheries is required to conclude informal consultation (50 CFR 402.13).

4. Beneficial Effect

Written concurrence is also required from the FWS or NOAA Fisheries if a beneficial effect determination is made.

Requests for written concurrence must be initiated in writing from the Forest Supervisor to the State Field Supervisor (FWS or NOAA).

Proposed Species:

Whenever serious adverse effects are predicted for a proposed species or proposed critical habitat, conferencing is required with the FWS or NOAA Fisheries.

1. No Effect

When there are “no effects” to proposed species, conferencing is not required with FWS or NOAA.

2. Not Likely to Jeopardize the Continued Existence of the Species or Result in Destruction or Adverse Modification of Proposed Critical Habitat

This conclusion is used where there are effects or cumulative effects, but where such effects would not have the consequence of losing key populations or adversely affecting “proposed critical habitat”. No conferencing is required with FWS or NOAA if this conclusion is made. However, for any proposed activity that would receive a “Likely To Adversely Affect” conclusion if the species were to be listed, conferencing may be initiated.

3. Likely to Jeopardize the Continued Existence of the Species or Result in Destruction or Adverse Modification of Proposed Critical Habitat

This conclusion must be determined if there are significant effects that could jeopardize the continued existence of the species, result in adverse modification or destruction of proposed critical habitat, and/or result in irreversible or irretrievable commitments of resources that could foreclose options to avoid jeopardy, should the species be listed. If this is the conclusion, conferencing with FWS or NMFS is required.

Sensitive Species:

1. No Impact (NI)

A determination of “No Impact” for sensitive species occurs when a project or activity will have no environmental effects on habitat, individuals, a population or a species.

2. May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species (MIIH)

Activities or actions that have effects that are immeasurable, minor or are consistent with Conservation Strategies would receive this conclusion. For populations that are small - or vulnerable - each individual may be important for short and long-term viability.

3. Will Impact Individuals or Habitat With a Consequence That the Action May Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species (WIFV)

Loss of individuals or habitat can be considered significant when the potential effect may be:

1. Contributing to a trend toward Federal listing (C-1 or C-2 species);
2. Results in a significantly increased risk of loss of viability for a species; or,
3. Results in a significantly increased risk of loss of viability for a significant population (stock).

4. Beneficial Impact (BI)

Projects or activities that are designed to benefit, or that measurably benefit a sensitive species should receive this conclusion.

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